

NASA Kennedy Space Center Swamp Works 10th Anniversary: Innovative Research & Technology Development Summary

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ABSTRACT

Kennedy Space Center's (KSC) Swamp Works, provides government and commercial space ventures with the technologies required for working and living on the surfaces of the Moon or other planets and bodies in our solar system. The Swamp Works team establishes agile, innovative and cost-effective exploration mission solutions through leveraging of partnerships across NASA, industry and academia. Concepts start small and build up fast, with lean development processes and a hands-on approach. Testing is performed in early stages to drive design improvements and progressively increase Technology Readiness Levels (TRL).

Swamp Works provides concepts, architecture studies and trades, designs, data, technology development, technology demonstration hardware, flight hardware, testing, flight support and knowledge in support of the development of surface systems. It consists of several teams with associated laboratories and test capabilities. The Granular Mechanics and Regolith Operations (GMRO) Laboratory and the Electrostatics and Surface Physics Laboratory (ESPL) are co-located in the Engineering Development Lab (EDL) facility high bay. The Applied Chemistry Lab (ACL) is in an adjacent facility and other KSC labs are being influenced by the innovation methods pioneered at the Swamp Works.

The Swamp Works was founded in January 2013 by a group of scientists and engineers at KSC with the over-arching vision of expanding humanity and civilization into the solar system by the use of space resources via advanced technology. Ultimately, this will create a solar system economy that will improve the human condition due to the abundance of energy and resources.

This paper will summarize the projects and technology development that have been performed by the Swamp Works to celebrate its 10th Anniversary of innovation success.